

AK.1 (V1) Report Cyber-human Improvisation Dynamics

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The study of cyber-human improvisation dynamics was able to address the difficult problem of "acceptability" of machine productions in an investigation with the guitarist Charles Kely Zana-Rotsy from Madagascar. Since October 2021, we have been working with him and with the Brazilian researcher Yuri Prado, currently a post-doctoral fellow at CAMS. An article is to be published in the Cahiers d'ethnomusicologie (Chemillier & Prado 2022) and Yuri Prado is also preparing a film on Charles Kely Zana-Rotsy (Prado 2022).

The interest of this work comes from the strongly idiomatic context of Charles Kely Zana-Rotsy's music deeply rooted in Malagasy traditions. The integration of a computer in this context raises the general question of hybridity in music: which combinations of influences and sources of inspiration work well and which do not? Research on hybridity has tended to take place at a macro level, focusing on the transnational intersections of musical genres (Gilroy 1993; Martin 2001), the formation of national identities (García Canclini 1995), or issues related to the commercial aspects of "world music" (Feld 2004). We focus on a more localized study of the phenomenon of hybridity, taking into account the role of the individuals involved in its manifestation. Based on Rice's (2003) idea of a "subject-based musical ethnography," we focus on Charles Kely Zana-Rotsy's conception and practice of hybridity. This investigation is based on ethnobiographical work (Gonçalves 2012) extended by musical analysis of Charles' recordings and ethnographic observation of musical interactions between him and the computer, particularly during public performances in a music bar in Paris (Chez Adel).

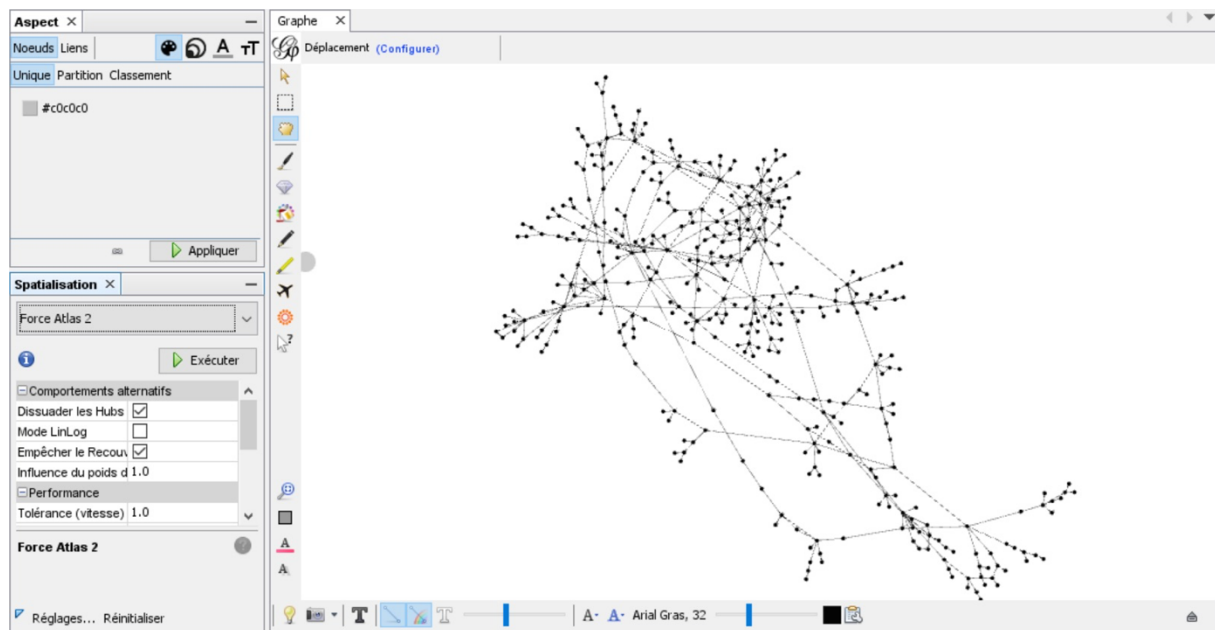
The case of Malagasy music is interesting because many authors have emphasized the strongly syncretic aspect of this music characterized by a powerful "tradition of crossbreeding" and the "unabashed mastery of borrowings" (Rabeherifara and Raison-Jourde 2008). Our investigation has made it possible to begin collecting interesting data on this openness to borrowing as seen through the music of Charles Kely Zana-Rotsy: first, Charles' openness to the musical genres of other regions of Madagascar (he himself is originally from the center of the country), then openness to international musical genres (fascination with the great jazz guitarists), and finally openness to technology. In this respect, we are interested in the clues given by Charles during the course of the survey about the possibilities, according to him, of extending his influences by drawing inspiration from the collaborations of other Malagasy music figures with big names in electro music such as Deep Forest (whose 1998 album *Comparsa* involved the collaboration of the group Njava from the south of Madagascar, who then became interested in the integration of machines in their 2001 album *Source*). It became clear during the interviews with Charles that he has a clear vision of what his music can absorb as external influences, including technology, and the rest of the investigation will focus on determining the criteria for distinguishing what is effectively "absorbable" and what is not.

Another subject has made a fruitful contribution to the reflection on the acceptability of the productions of improvisation software. It is related to the centenary of the birth of the Belgian harmonica player Toots Thielemans (1922-2016). On this occasion, we realized a musical avatar of this great figure of jazz history. The experiment implemented several technological components of the MERCI project. Thanks to the work of Shlomo Dubnov and Ke Chen, we were able to extract the harmonica part from a recording of Toots Thielemans with pianist Bill Evans (Body And Soul on the album Affinity, 1979). Then we improvised with the Djazz software, in the new version developed by Mikhail Malt, from this harmonica sequence following the piano-bass-drums accompaniment that we had reconstructed after transcribing it into MIDI. In the context of the Toots Thielemans centenary, we were able to interact with connoisseurs of his style thanks to the collaboration of Hugo Rodriguez of the Royal Library of Brussels who is himself a specialist. The reactions of the commentators unanimously underlined the impressive character of the avatar. But further listening pointed to some interesting problems in introducing the notion of "musical discourse" (McAuley et al. 2021). This is what Hugo Rodriguez, who carried out the listening, reported: the problem posed by the avatar is "the absence of a feeling that the music 'said something' in the false Toots, that it was not 'a speech', a word". He explains: "the more one is impregnated with the culture(s) of such instrumental music, the more one will tend to be able to associate articulated meanings, a history, and moreover relatively convergent meanings between subjects "who speak the same music". A communication accepted at the Toots Thielemans colloquium to be held in Brussels in May 2022 will allow us to present an assessment of these experiments. They open very interesting perspectives to deepen our understanding of the differences between what the machine generates and what a human musician produces.

We have begun to explore another field of study of improvisational musical practices. Indeed, as the pandemic has reduced the possibilities of meeting musicians, we have turned to social networks, and more particularly to TikTok. The lightning manner in which this network has propelled certain musical titles through the countless videos of teenagers covering these titles in the background has pushed many musicians to get on TikTok (Davet 2020). One of the interesting features of this application is the possibility to make a virtual duet by adding a musical part on an existing video. Relationships between musicians can thus be established at a distance. We have started a web scraping study with the collaboration of Rémi Jaylet, a student at Télécom. This research is based on David Teather's Python API which allows to collect data about TikTok users (Teather 2021) and to filter them according to musical criteria by making recursive requests along some links. The link that we found most interesting was mentioning another musician in the caption of a video. This "X mentions Y" link includes in particular the case of duets (mention preceded by a hashtag such as #duetwith) and generally corresponds to a form of musical collaboration.

We visualized the relationships between musicians in the form of a graph using the Force Atlas algorithm as implemented in the Gephi software. We can thus show the dense points, the sparse areas, the possible separation of the graph into connected components, the sub-graphs corresponding to specialized mentions (duets, covers, etc.). This is inspired by techniques used by CAMS researcher David Chavalarias in his analysis of political

communities on Twitter (Chavalarias et al. 2019). Dense areas identify musicians who do a lot of collaborations in the form of duets, responses to a query ("play this tune"), etc.



One of the difficulties at the current stage is to target musicians practicing improvisation. The analysis of some hashtags pages should allow to get closer to them, for example the hashtags #synthsolo, #keyboardsolo or #maxmsp (other hashtags like #improvisation are more heterogeneous and would require to be filtered). The ultimate goal is to deliver a synthesis of the communities of musicians on TikTok and their musical practices in order to define the improvisers targeted by the survey. This will allow to explore the social network to establish contacts with some of them and to consider collaborations that could involve the improvisation software for example in order to make videos of virtual duets.